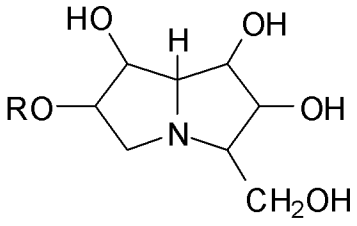
CLAIM AMENDMENTS

This listing of claims will replace all prior versions and listings of claims in the application.

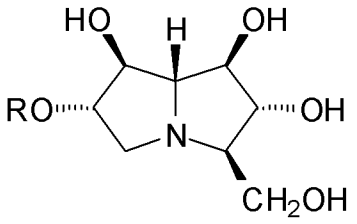
Claims 1-44 (canceled)

45. (Currently amended) A method ~~for treating a disease associated with a deleterious immune response~~ of immunomodulation in the treatment or prophylaxis of a condition in which stimulation, augmentation or induction of the immune system is indicated or in which suppression or elimination of part or all of the immune response is indicated comprising administering to a patient in need of such treatment a therapeutically effective amount of a polyhydroxylated pyrrolizidine compound of formula:



wherein R is selected from the group comprising hydrogen, straight or branched, unsubstituted or substituted, saturated or unsaturated acyl, alkyl, alkenyl, alkynyl and aryl groups; a saccharide moiety; or a pharmaceutically acceptable salt or acyl derivative thereof.

46. (Previously presented) A method according to claim 45 wherein the pyrrolizidine compound has the formula:



wherein R is selected from the group comprising hydrogen, straight or branched, unsubstituted or substituted, saturated or unsaturated acyl, alkyl, alkenyl, alkynyl and aryl groups, or a pharmaceutically acceptable salt or acyl derivative thereof.

47. (Previously presented) A method according to claim 45 wherein the pyrrolizidine compound is a glycosidase inhibitor.

48. (Previously presented) A method according to claim 45 wherein the pyrrolizidine compound, when administered *in vivo*, modifies one or more of:

(a) tumour cell glycosylation;

(b) viral protein glycosylation;

(c) cell-surface protein glycosylation;

(d) bacterial cell walls and

(e) cytokine release activity, by stimulation of secretion of one or more cytokine.

49. (Previously presented) A method according to claim 45 wherein the pyrrolizidine compound is an acyl derivative.

50. (Currently amended) A method according to claim 49 wherein the pyrrolizidine acyl derivative is ~~chosen from a peracylated derivative, a derivative that is acylated at C-3 hydroxymethyl; a~~ derivative that is acylated at C-6~~; and a derivative that is acylated at C-3 hydroxymethyl and C-6~~.

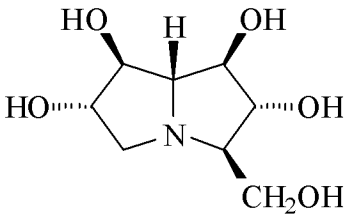
51. (Previously presented) A method according to claim 49 wherein the acyl derivative is an alkanoyl derivative selected from acetyl, propanoyl and butanoyl.

52. (Previously presented) A method according to claim 45 wherein R is a saccharide moiety.

53. (Previously presented) A method according to claim 52 wherein the saccharide moiety is a glucoside or arabinoside moiety.

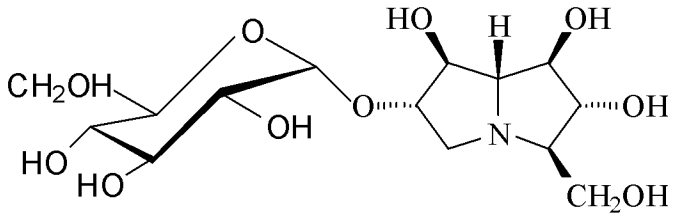
54. (Previously presented) A method according to claim 45 wherein the pyrrolizidine compound is chosen from:

(a) 1R,2R,3R,6S,7S,7aR)-3-(hydroxymethyl)-1,2,6,7-tetrahydroxypyrrolizidine (casuarine), wherein R is hydrogen and having the formula:



(b) a casuarine glycoside;

(c) casuarine-6-α-D-glucoside of the formula:



(d) 6-O-butanoylcasuarine;

(e) 3,7-diepi-casuarine;

(f) 7-epi-casuarine;

(g) 3,6,7-triepi-casuarine;

(h) 6,7-diepi-casuarine;

(i) 3-epi-casuarine;

(j) 3,7-diepi-casuarine-6-α-D-glucoside;

(k) 7-epi-casuarine-6-α-D-glucoside;

(l) 3,6,7-triepi-casuarine-6-α-D-glucoside;

(m) 6,7-diepi-casuarine-6-α-D-glucoside;

(n) 3-epi-casuarine-6-α-D-glucoside, and

a pharmaceutically acceptable salt or derivative of any of (a) – (n).

55. (Previously presented) A method according to claim 45 wherein said polyhydroxylated pyrrolizidine compound is administered in combination with an additional therapeutic agent chosen from one or more of:

(a) an immunostimulant;

(b) a cytotoxic agent;

(c) an antimicrobial agent;

(d) an antiviral agent; and

(e) a primed dendritic cell.

56. (Previously presented) A method according to claim 46 wherein said disease is chosen from

(a) a proliferative disorder;

(b) a Th1-related disease or disorder;

(c) a Th2-related disease or disorder;

(d) a bacterial infection;

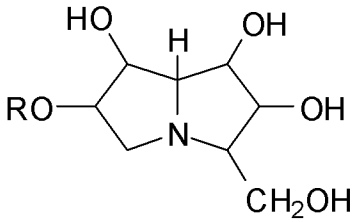
(e) a viral infection;

(f) a prion, fungal, protozoan or metazoan infection; and

(g) a disease associated with an intracellular pathogen.

57. (Previously presented) A method according to claim 56 wherein said viral infection is selected from respiratory syncytial virus (RSV), hepatitis B virus (HBV), Epstein-Barr, hepatitis C virus (HCV), herpes simplex type 1 and 2, herpes genitalis, herpes keratitis, herpes encephalitis, herpes zoster, human immunodeficiency virus (HIV), influenza A virus, hantann virus (hemorrhagic fever), human papilloma virus (HPV) and measles.

58. (Previously presented) A method for immunomodulation comprising administering to a patient in need of such treatment a composition containing a therapeutically effective amount of a polyhydroxylated pyrrolizidine compound of formula:



wherein R is selected from the group comprising hydrogen, straight or branched, unsubstituted or substituted, saturated or unsaturated acyl, alkyl, alkenyl, alkynyl and aryl groups, or a pharmaceutically acceptable salt or acyl derivative thereof.

59. (Previously presented) The method of claim 58 wherein said composition comprises a herbal medicine.

60. (Previously presented) A method according to claim 59 wherein said herbal medicine derives from one or more plant species sources selected from:

(a) a member of the taxon Myrtaceae

(b) a member of the taxon Casuarinaceae;

(c) a combination of two or more plant species selected from both of the taxons of (a) and (b).

61. (Previously presented) A method according to claim 58 wherein the Th1:Th2 response ratio is increased.

62. (Previously presented) A method for immunomodulation according to claim 58 chosen from

(a) haemorestoration;

(b) haemoablative immunotherapy;

(c) alleviation of immunosuppression;

(d) cytokine stimulation;

(e) vaccination, wherein the pyrrolizidine compound acts as an adjuvant;

(f) vaccination with a dendritic cell vaccine wherein the dendritic cells are contacted with the pyrrolizidine compound;

(g) administration of dendritic cells in the treatment or prophylaxis of autoimmune disorders, wherein the dendritic cells are contacted with the pyrrolizidine compound;

(h) wound healing;

(i) stimulating the innate immune response;

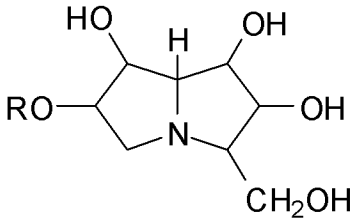
(j) boosting the activity of endogenous NK cells;

(k) inducing, potentiating or activating one or more cytokines in vivo; and

(l) providing chemoprotection to a patient undergoing chemotherapy.

63. (Withdrawn) A vaccine comprising

(1) a polyhydroxylated pyrrolizidine compound of formula:



wherein R is selected from the group comprising hydrogen, straight or branched, unsubstituted or substituted, saturated or unsaturated acyl, alkyl, alkenyl, alkynyl and aryl groups;

in combination with

(2) an antigen,

said pyrrolizidine compound being present in an amount sufficient to produce an adjuvant effect on vaccination.